

REMARKS

This responds to the final office action of 31 March 2004. Claims 1, 3-10, 12-19, 23-27, and 30-51 were pending in the application. Of these, claims 34-39 are withdrawn from consideration pursuant to a requirement for restriction. Claims 1, 7, 8, 12-19, 23, 24, 26, 27, 30-33, 50 and 51 were rejected. Claims 3-6, 9, 10, 22 and 25 were objected to, but were indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 22 was priorly cancelled. Claims 1, 16-18, 23, 26, 50 and 51 were rejected under 35 U.S.C. §103 (a) as being unpatentable over the Lanham, et al. publication WO 01/65213 A1 in view of Van der Pol U.S. 6,336, 370.

Attached is an affidavit by Jeffrey D. Nehr, the Vice President and General Counsel of Micro Motion, Inc., stating that both Lanham et al. and the present application were owned by the same person. Lanham et al. is assigned on its face to Micro Motion, Inc. of Boulder, Colorado. The present application is assigned on its face to Emerson Electric Co, St. Louis, Missouri. Micro Motion, Inc. is a wholly owned subsidiary of Emerson Electric Co. Attached is a copy of the assignment to Emerson Electric Co. executed by the inventors for the present application.

The above indicates that both the Lanham et al. and the present application were owned by Emerson Electric Co. at the time the claimed invention was made. It is therefore respectfully requested that Lanham et al. be disqualified as a reference of the subject matter claimed in the present application pursuant to the provisions of 35 U.S.C. §103(a).

Comments Regarding Rejection of Independent Claim 1.

The 35 U.S.C. §103(a) rejection of claim 1 in view of Lanham et al. and Van der Pol is traversed on three separate reasons.

The first reason of traverse is that the Examiner's rejection deprives the applicants of their due process rights since it does not meet the requirements of a 35 U.S.C. §103(a) rejection as set forth in the applicable MPEP sections and case law.

The second reason of traverse is that no evidence or discussion of motivation to combine was offered by the Examiner.

The third reason of traverse is that Van der Pol is not an enabling reference for the purposes relied on by the Examiner.

First Reason for Traverse

The first reason for traverse of the rejection of claim 1 is that the Examiner's 35 U.S.C. §103(a) rejection does not meet the legal requirements of a 35 U.S.C. §103(a) rejection set forth in the MPEP and the case law. This deficiency deprives the applicants of due process since they are not provided with sufficient information to understand the rejection and respond thereto in a manner that enables them to advance the prosecution of the application. A supplemental office action is requested that complies with all applicable laws, rules and regulations pertaining to 35 U.S.C. §103(a) rejections.

The requirements for a 35 U.S.C. §103(a) obviousness rejection are set forth in MPEP Sections 2142 and 2143. These requirements are also articulated by many decisions of the Court of Appeals for the Federal Circuit.

It is beyond the scope of this amendment to present a treatise on 35 U.S.C. §103(a) obviousness rejections. It is sufficient to set forth a few summary observations regarding the deficiencies of the Examiner's rejection.

Hindsight is not permitted. The last few lines of MPEP §2142 on pages 2100-123 and 124 state:

"However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of facts gleaned from the prior art."

The Applicants assert that the Examiner's 35 U.S.C. §103(a) rejection is a classic case of impermissible 20/20 hindsight engineering using facts gleaned from a reading of the Applicants' own disclosure rather than from facts derivable from a reading of the prior art.

The last portion of MPEP §2142 and the first portion of §2143.01 require that the Examiner's cited art must provide motivation to combine the references as well as a discussion of the nature of the problem to be solved, the teachings of the prior art and

the knowledge of persons of ordinary skill in the art. *MPEP §2143.01 on page 2100-125 states that "The combination of references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a prima facie case is improper."*

The Examiner's rejection of claim 1 is devoid of evidence proving motivation to combine. The format of the Examiner's 35 U.S.C. §103(a) rejections is to characterize the disclosure of the cited references and then to conclude with an unsupported assertion that it would be obvious to combine the two references to anticipate the claim being rejected.

MPEP, the left column of page 2100-126 is entitled:
"Fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness."

MPEP §2143.01, page 2100-124 states that "references that are relied upon and that teach all aspects of the claimed invention in individually-known art are not sufficient to establish a primary *prima facie* case of obviousness without some objective reason to combine the teaching of the references." The Examiner's 35 U.S.C. §103(a) rejection ignores this requirement.

MPEP §706.02(j) is further instructive regarding 35 U.S.C. §103(a) rejections. Page 700-31 column 1, requires the Examiner to state the proposed modification of the references necessary to arrive at the claimed subject matter and to give an explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to propose the modification. To provide such evidence, there must be some suggestion of motivation, either in the references themselves or in the general knowledge available to one skilled in the art, to modify the reference or to combine the teachings.

The bottom portion of the same MPEP page, column 1, states that the burden is on the Examiner to provide the suggestion of desirability of doing what the Examiner has done. It further states that the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in the

light of the teaching of the references. The Examiner made no effort to meet these requirements.

The inadequacy of the Examiner's 35 U.S.C. §103(a) rejection of claim 1 may be readily appreciated by reviewing the rejection. The Examiner begins by summarizing what Lanham et al. teaches and what it fails to teach. The Examiner's rejection states what Van der Pol teaches (while ignoring the issue of PFA and enablement). There is no discussion by the Examiner regarding motivation. The rejection concludes with the unsupported assertion that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the PFA material of Van der Pol for the tube of Lanham et al. The Examiner's assertion fails to meet the requirements of MPEP §2142, §2143.

It might be said that the Examiner treats the process of generating a 35 U.S.C. 103(a) obviousness rejection somewhat as akin to a trip through a hardware store where the various claim elements are components in the bins of the hardware store. The Examiner collects the recited claim elements from their respective bins, places them in a shopping cart and then asserts that it would be obvious to combine the collected parts to make obvious the claimed invention.

Following are statements representative of the applicable case law relevant to the issue of combining references for a 35 U.S.C. §103(a) obviousness rejection.

1. When a patent describes a new mechanical device that can be viewed as a new combination of mechanical components, the legal conclusion of obviousness requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and use them to make the new device. C.R. Bared, Inc. v. M3 Systems, Inc., 48 USPQ2d 225 (Fed. Cir. 1998).
2. The mere fact that it is possible to find two isolated disclosures that might be combined in such a way so as to produce a new result does not necessarily render the production obvious unless the art also contains some suggestion of the desirability of the proposed combination. In re, Grabiak, 226 USPQ 870 (Fed. Cir. 1985).
3. The absence of a suggestion in the prior art to combine is dispositive in an obviousness determination. Gambro Lundia AB v. Baxter Health Care Corp., 42 USPQ2d 1378 (Fed. Cir. 1997).

4. It is improper to use the inventor's patent as an instruction book on how to reconstruct the prior art. Panduit Corp. v. Dennison Mfg. Co., 1 USPQ2d 1953 (Fed. Cir. 1987).

5. The expected success of a proposed combination must be found in the prior art and not in the applicants' own disclosure. In re, O'Farrell, 7 USPQ2d 1673 (Fed. Cir. 1988).

6. The problem confronted by the inventor must be considered in determining whether it would have been obvious to combine references in order to solve the problem. Northern Tel Com, Inc. v. Data Point Corporation, 15 USPQ2d 1321 (Fed. Cir. 1990).

7. Rejecting patents solely by finding prior art correlaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together the elements in the prior art. Such an approach is illogical and inappropriate in determining patentability. To prevent the use of hindsight based upon the invention to defeat patentability, the law requires that the examiner show a motivation to combine in order to create a case of obviousness. In re, Rouffet, 47 USPQ2d 1453 (Fed. Cir. 1998).

8. The genius of invention is often a combination of known elements that in hindsight seems preordained. To prevent hindsight invalidation of claims, the law requires some teaching, suggestion or reason to combine the cited references. The test to combine references must be applied rigorously. If the references taken in combination would produce a seemingly inoperative device, such references teach away from the combination and cannot serve as predicates for a *prima facie* case of obviousness. McGinley v. Franklin Sports, Inc., 60 USPQ2d 1001 (Fed. Cir. 2001).

The Applicants assert that the 35 U.S.C. §103(a) obviousness rejection based upon the Lanham et al./Van der Pol combination is legally insufficient as being devoid of any evidence or discussion of motivation to combine or modify.

The Examiner's obviousness rejection was also applied to dependent claims 7, 8, 12-19, 23, 24, 26, 27, 30-33, 50 and 51. The Examiner used the same defective rejection format in rejecting these dependent claims by failing to provide any evidence or discussion of motivation to combine or modify. As a result, the Applicants find it unduly difficult to respond to the Examiner's rejections.

All claims ranging from the broadest (claim 1) to the most detailed dependent claims have been asserted by the Examiner to be "obvious." It almost might be said

that the Examiner believes that anything and everything is obvious if it can be found somewhere in the prior art. It appears that the Examiner reads a claim, identifies the recited claim elements, shops through the prior art to find the recited claim elements even if they are found separately in separate areas of the prior art. Having successfully found all recited claim elements, wherever located, the Examiner assembles them into a collage and asserts that the assembled elements make the claimed invention obvious. This is contrary to In re Rouffet, supra.

Lanham et al. fails to meet the claim 1 recitation of a flow tube formed of PTFE or PFA. Van der Pol also fails to meet this recitation. The Van der Pol flow tube segment lacks flexibility and is not formed of PTFE or PFA. This lack of flexibility is used by Van der Pol to prevent a shifting of the axial center portion of his flow tube. The Van der Pol flow tube must be rigid and inflexible regardless of whether the flow tube is made of metal or made of PTFE or PFA which is alluded to but not enabled by Van der Pol. Even if the Van der Pol flow tube were made out of PTFE or PFA, it would not have high flexibility and would be rigid throughout its length except for its center portion proximate the radial grooves. These grooves are required to achieve the purposes of the Van der Pol invention. There is no motivation to combine in either Van der Pol or Lanham et al.; the Examiner has provided no discussion or evidenced of motivation to combine.

Claim 1 distinguishes from the Examiner's cited combination of by the recitation of a flow tube formed of PTFE or PFA that does not transfer ions to said process material. The cited combination of references fails to meet this recitation since the off-hand suggestion in Van der Pol that the flow tube could be made from PFA is not enabling regarding the use of PTFE or PFA. The reason is that Van der Pol does not teach one skilled in the art to which the invention pertains how to incorporate a PFA flow tube of a working flowmeter. To do this, there are many design and development problems that must be first overcome. None of these are taught by Van der Pol. See In re Dow Chemical, infra.

The substitution of one material for another as proposed by the Examiner presents only minor problems if the functionality of the structure (such as a rolling pin) embodying the substituted material is not changed. However the substitution of one material for another can present challenging design and development problems if the

functionality of the structure containing the substituted material is altered by the material substitution. The problems then created by the substitution can be overwhelming. The off-hand comment pertaining to PFA by Van der Pol is not enabling and is not sufficient to form a combination with Lanham et al. for a valid 35 U.S.C. §103(a) obviousness rejection. Even if Van der Pol's suggestion of PFA could be considered enabling, the only thing enabled would be the specific flow tube segment shown by Van der Pol. His flow tube segment is of necessity thick walled and is relatively stiff throughout the entirety of its length except for its center portion where it has radial grooves to receive transducers. Only the center portion proximate the transducers has sufficient flexibility to respond to the Coriolis deflections. This is required by the Van der Pol invention so that the axial midpoint of his flow tube segment does not shift in response to Coriolis deflections.

The Van der Pol structure that the Examiner proposes to combine with Lanham et al. would be thick walled and non-flexible. The suggestion regarding PFA in Van der Pol therefore is limited to the specific flow tube structure shown by Van der Pol. The mention of PFA in Van der Pol is not a license to assert that any Coriolis flow tube could be formed of PFA. His comment is limited to his flow tube structure and cannot be ubiquitously applicable to Coriolis flowmeters and flow tubes.

Second Reason for Traverse

The second reason of traverse of the 35 U.S.C. §103(a) obviousness rejection of claim 1 and its rejected dependent claims is that there would be "zero" motivation by a person skilled in the art to which the present invention pertains to consider or attempt to combine the teachings of Van der Pol and Lanham et al. when creating the Coriolis flowmeter taught by the present invention. The flow tube of the Applicants' flowmeter has a small diameter, is thin walled, is highly flexible, and is formed of PTFE or PFA that does not leach ions from the flow tube material to the process material that flows through the flow tube. It is submitted that one skilled in the art and faced with the challenge of this assignment would not be motivated to consider the thick walled Van der Pol flow tube which is rigid and inflexible to Coriolis deflections for most of its length. The fact that Van der Pol states, without teaching, that his flow tube segment could be

made of PFA, is not enabling insofar as concerning claim 1 since the resulting PFA flow tube proposed by the Examiner would, of necessity, be thick walled and relatively inflexible over most of its length and would be required to have radial slots in its center portion to detect Coriolis responses. Such a flow tube would not meet the requirements that Applicants' flow tube be thin walled and flexible.

Case law states that:

"A mere suggestion in the prior art of the expiration of a new technology or a general approach in the prior art that only provides general guidance towards a solution to a problem does not rise to an obviousness."
(In re Dow Chemical, 837 F.2d 469, 473 Fed. Cir. 1988).

It is submitted that, even if a skilled practitioner were aware of both Van der Pol and Lanham et al., it would not be apparent to the investigator to attempt to combine the thick walled non-flexible flow tubes of Van der Pol (with or without PFA) into the flow tube structure of Lanham et al.

The Examiner solves the above-discussed design and development problems by asserting:

"It would have been obvious to one of ordinary skill in the art at the time that the invention was made to form a Coriolis flowmeter as disclosed by Lanham et al. with a tube made entirely of PTFE or PFA as taught by Van der Pol."

The Examiner's comment appears to be a classic case of 20/20 hindsight engineering based upon knowledge gained from a reading of the Applicants' application. The Examiner's unsupported assertion that Van der Pol and Lanham et al. "could be combined" neglects to address how the many vexing and challenging design problems faced by the inventors of the subject flowmeter could be overcome by a person skilled in the art when attempting to implement the Examiner's proposed combination. The Examiner did not offer information as to how the PFA flow tube could be mounted to a Coriolis flowmeter structure, how the PFA flow tube could be supported, how the PFA flow tube could be operated so as to not be burdened with the weights and mass of pickoffs and drivers, etc. All of these details that were ignored by the Examiner were ultimately solved by the applicants who created a structure having no resemblance or similarity to that disclosed by Lanham et al. and/or Van der Pol. It is submitted that even if the applicants had been aware of Lanham et al. and/or Van der

Pol, nothing in there references, taken singly or in combination, it would have been of the slightest value to them in solving the many problems inherent in the design and development of the present invention.

Third Reason for Traverse

The third reason for traverse is that Van der Pol is not an enabling reference for the purposes cited by the Examiner.

Van der Pol discloses a Coriolis flowmeter having a flow tube formed of PTFE or PFA plastic. Van der Pol contains an off-hand remark that his flow tube could be formed of PFA. This off-hand remark does not make Van der Pol enabling with respect to a Coriolis flowmeter having a flow tube formed of perfluoroalkoxyethylene (PFA). See In re Dow Chemical, supra.

The mere substitution of a PTFE or PFA flow tube for a metal or plastic flow tube, without more, might produce a structure that looks like a Coriolis flowmeter. However, the structure will not function as a Coriolis flowmeter to generate accurate output information over a useful range of operating conditions. The gratuitous comment that a flow meter could be made out of PFA teaches nothing beyond the abstraction that PFA can be substituted for the metal or plastic of an existing Coriolis flow meter. Obviously, as a further abstraction it could be said that "anything could be substituted for anything". Such a statement would be unassailably true if there in no concern whether a useful product would result. However, such an assertion does not enable or teach how a Coriolis flowmeter having a PFA flow tube can be manufactured to generate accurate information over a useful range of operating conditions. Van der Pol's off-hand comment of the use of PFA is incidental to his patent which discloses no information regarding how a flowmeter having a PFA flow tube could be manufactured to generate accurate flow information.

PFA is chemically inert and has very low surface energy. This makes PFA very difficult to bond to other objects using common adhesives. One way to solve this problem is to change the surface chemistry of PFA by chemical etching. Etching the surface of PFA provides for much stronger bonds using adhesives. However, even though etching provides a stronger bond with PFA, bonding PFA to other objects must

be carefully done to create a strong bond. The following considerations must be taken into account to create a strong bond: the type of adhesive used, the gap between the PFA and another object, whether there is complete coverage of the gap with the adhesive, whether the adhesive cures properly, the condition of the surface of the PFA, and the condition of the surface of the other object. Unfortunately, there is currently no convenient way to bond PFA to other objects to build a flow meter.

Typical Coriolis flowmeters as are manufactured out of metal. Metal is fairly easy to manufacture using current machining and welding technologies. A Coriolis flowmeter is comprised of one or more metal flow tubes. Most Coriolis flowmeters require that the ends of a flow tube be secured to achieve the desired dynamic characteristics of a vibrating tube. The flow tube ends are generally secured in a fixed position by manifolds, brace bars, or some other structure. The flow tube is affixed to a manifold by welding the flow tube to the manifold. A driver and pick-offs are also affixed to the flow tube. One example of the driver and the pick-offs are a magnet-coil configuration. The driver and pick-offs are affixed to the flow tube by joining the magnets for the driver and the pick-offs to the flow tube. The driver and pick-offs can be easily and accurately affixed to the flow tube using current welding technologies.

Unfortunately, there is no easy way to affix PFA flow tube ends to a manifold, brace bars and the like to support the flow tube. There is also no easy and accurate way to affix a driver and pick-offs to a PFA flow tube. Traditional welding and brazing processes cannot be used for PFA flow tubes. PFA is soft and flexible unlike metal and most plastics. This can make working with PFA a difficult task. To accurately measure mass flow rate of a process material, the driver and pick-offs should be accurately aligned and positioned on the flow tube. The difficulty of affixing the driver and pick-offs to a PFA flow tube makes accurate alignment and positioning of the driver and pick-offs difficult.

Manufacturers of PFA tubing generally produce the tubing in bulk. The manufacturer uses an extruder to produce the tubing. The tubing comes out of the extruder at a temperature higher than room temperature. The tubing is wound around a spool so that a large length of tubing can be easily handled and neatly packaged. The tubing cools on the spool. When the tubing is later unwound from the spool, the tubing

has a curved shape. If the curved tube is used as a flow tube for a flow meter, the curved shape of the flow tube can cause accuracy problems for the flow meter. Therefore, a Coriolis flowmeter manufacturer must straighten the PFA flow tube, hold the PFA flow tube in a straight position during manufacturing, or acquire specially made tubing from the manufacturer at a high cost. Unfortunately, there is currently no convenient solution to the above problems that the flow meter manufacturer faces. The above and other problems were solved by the applicants in the design and development of the Coriolis flowmeter of the present invention.

The PFA flow tube of the present invention is extremely flexible and has thin walls akin to a soda straw. Van der Pol discloses a thick walled flow tube (4) which is thick and rigid along most of the axial length of the flow tube so that it does not respond to Coriolis vibrations. Van der Pol asserts that this prevents the center of mass of the flow tube from shifting. The longitudinal center portion of the Van der Pol flow tube has radial grooves into which the driver and pickoffs are placed. The portion of the flow tube proximate the grooves is sufficiently flexible so that only this axial center of the flow tube is responsive to Coriolis vibrations. The remainder of the longitudinal portion of the flow tube is thick and substantially non-responsive to Coriolis vibrations.

It should be noted that Van der Pol is not directed to a Coriolis flowmeter. No Coriolis flowmeter structure beyond a flow tube segment is shown by Van der Pol. The teaching of Van der Pol must be limited to what he discloses and claims, namely, a thick walled flow tube segment which is stiff and unresponsive to Coriolis deflections except for the longitudinal center portion proximate the grooves of his flow tube.

Column 4, lines 30-34 of Van der Pol state "that the thick walled flow tube (4) could consists of metal or various plastics such as PFA." His dependent claims 3 and 14 recite a flow tube formed of various plastics including PFA. Van der Pol does not state why a thick flow tube segment having grooves and formed of PFA would be desirable over a conventional thick walled metal or flow tube. He also does not teach how or why his thick walled flow tube segment with grooves could be incorporated into applicants' flowmeter as proposed by the Examiner. What benefit would be achieved by using the thick rigid Van der Pol flow tube in any Coriolis flowmeter, such as Lanham et al. Where is the motivation to make such a combination? Where is the evidence of

such motivation? What would be the goal of such motivation? The answer is that there is no motivation and no evidence of motivation. The Examiner's rejection is based entirely on hindsight engineering using knowledge obtained from a reading to the applicants' disclosure.

For the above reasons, Van der Pol is non-enabling with respect to the disclosure of a Coriolis flowmeter having flow tubes formed of PTFE or PFA as required by claim 1. His off-hand comment that a flow tube could be formed of PFA without more is not enabling as to the entirety of the Coriolis flowmeter having a flow tube formed of PTFE or PFA. See In re Dow Chemical, supra.

Discussion of Dependent Claims

Dependent claims 7, 8, 12-19, 23, 24, 26, 27, 30-33, 50 and 51 were rejected over the Lanham et al./Van der Pol combination. These rejections are traversed for the same reasons as discussed in connection with independent claim 1. The rejection of independent claim 1 has been shown to be legally deficient thereby making claim 1 allowable. Its rejected dependent claims should similarly be allowable.

With respect to dependent claim 16, the Examiner stated, "Lanham discloses a process connection (411) coupled to a base (407, 409)." Lanham et al. does not have a base. The Examiner's rejection incorrectly characterizes Lanham et al. The Lanham et al. element 411 is a flow channel and not a process connection as asserted by the Examiner. The Lanham et al. element 407 is a case end and not a process connection. The Examiner is requested to clarify these inaccuracies by accurately characterizing the elements of Lanham et al. upon which he relies.

Regarding the rejection of claim 17, element 414 is a flow tube inlet and not a hole as asserted by the Examiner. Element 409 is a flange and not a base as asserted by the Examiner. Element 411 is a flow channel and not a process connection as asserted by the Examiner. The Examiner's rejection of claim 17 is inaccurate and without merit since he fails to correctly identify and characterize the elements upon which he relies. Clarification is respectfully requested.

Regarding claims 18 and 23, element 904 is a manifold and a not process connection as asserted by the Examiner. Element 1202 is a process connection and

not a base as asserted by the Examiner. The rejection of claims 18 and 23 is without merit since the Examiner failed to correctly designate the elements of Lanham et al. upon which he relies. Clarification is requested.

Regarding the rejection of dependent claim 26, element 411 is a flow channel and not a process connection as asserted by the Examiner. The rejection is therefore deficient and without merit since the Examiner fails to correctly identify the element of Lanham et al. upon which he relies.

Dependent claims 50 and 51 are directed to a Coriolis flowmeter having a process connection formed of PTFE or PFA. The rejection of these claims in view of Van der Pol is traversed since Van der Pol does not show process connections and since the off hand remark in Van der Pol regarding PFA is not enabling as priorly discussed in connection with claim 1. The Examiner is reminded that Van der Pol discloses only a segment of a flow tube. He does not disclose a Coriolis flowmeter nor the various components such as the process connections formed of PFA to which claims 50 and 51 are directed.

The rejection of dependent claims 7 and 8 as unpatentable over the Lanham et al./Van der Pol combination taken in conjunction with Drahm et al. is respectfully traversed as being based upon the legally deficient combination of Lanham et al./Van der Pol as discussed in connection with claim 1.

Claims 12-15, 19 and 24 were rejected over the Lanham et al./Van der Pol combination in view of Cage, U.S. 5,753,827. Cage suggests that any suitable method of attachment such as bonding or adhesives could be used to affix magnet/coil pairs through a flow conduit. The rejection is respectfully traversed as being based upon the legally deficient Lanham et al./Van der Pol combination as priorly discussed in connection with claim 1.

Claims 27 and 30 are directed to the step of adhering a flow tube means to a process connection including by the use of the step of laser welding. Their rejection is respectfully traversed since lines 24-26 of column 5 of Cage do not disclose the use of laser welding as asserted by the Examiner. These claims are also rejected as being based upon the legally deficient Lanham et al./Van der Pol combination.

Claim 31 was rejected as unpatentable over the Lanham et al./Van der Pol combination taken in conjunction with Kane, U.S. 4,856,346. This rejection is respectfully traversed since it is based upon the legally deficient Lanham et al./ Van der Pol combination.

Claims 32 and 33 are directed to the use of a temperature sensing device affixed to a Coriolis flowmeter. These claims were rejected over the Lanham et al./ Van der Pol combination in view of Cage. This rejection is respectfully traversed in view of its reliance upon the deficient Lanham et al./Van der Pol combination.

The applicants note the objections to claims 3-6, 9, 10, 22 and 25 together with the Examiner's comment as to how they could be made allowable by incorporating the subject matter of the claims upon which they depend. The applicants decline to revise these claims as suggested by the Examiner.

CONCLUSION

The Applicants have made objections to the format used by the Examiner in formulating obviousness rejections. It is submitted that the Examiner has ignored the requirement for the proof of evidence of motivation to combine or modify. The Examiner's obviousness rejections may be characterized as beginning with a brief summary of the cited prior art references followed by a statement that the references could be combined. This statement is followed by an unsupported assertion that it would be obvious to combine the references in the manner the Examiner asserts. The Applicants assert that the 35 U.S.C. §103(a) obviousness rejection based upon the Lanham et al./Van der Pol combination is legally insufficient as being devoid of any evidence of motivation to combine or modify.

The Examiner used the same defective rejection format in rejecting the dependent claims by failing to provide any proof, evidence or discussion of motivation to combine or modify. As a result, the Applicants found it unduly difficult to adequately respond to the Examiner's rejections.

In summary, Applicants submit the Examiner's obviousness rejections are not legally supportable. All claims should therefore be allowable.

The criteria employed by the Examiner in his rejections appear to be that a claim is obvious if all of its elements can be found somewhere. Using this criteria, it would

appear that the Examiner reads a claim, identifies the recited elements, shops through the Coriolis flowmeter art to find the recited elements even if they are found separately in separate areas. Having successfully found all recited elements, wherever located, the Examiner then assembles them into a collage and concludes by asserting that the assembled elements "makes the claimed invention obvious." This is contrary to In re Rouffet, supra.

A few observations from the realities of the commercial world of Coriolis flowmeters may be useful. Applicants' invention comprises a high sensitivity, high accuracy Coriolis flowmeter using a PTFE or PFA flow tube. This Coriolis flowmeter is temperature compensated and maintains its accuracy over a wide range of changing process material temperatures. The PTFE or PFA flow tube prevents contamination of the contained process material due to ion transfer from the material of the flow tube itself to the process material.

The disclosed Coriolis flowmeter is especially useful in high-tech applications where purity of the highest possible level is required to prevent contamination of the process material. Examples of such an application is in the field of semiconductor fabrication where an undesired ion injected into a semiconductor wafer during fabrication could destroy the usefulness of the entire wafer and result in the wafer being discarded with a loss of many thousands of dollars.

The Applicants' flowmeter has been commercially successful and the Applicants are not aware of a flowmeter of others using PTFE or PFA in a flow tube. In spite of Applicants' achievements in producing a unique product that has been successful, Applicants have received office actions which assert, in essence, that everything they have claimed to date is "obvious." This assertion of "obviousness" must be weighed against the lack of any known use by others of a PTFE or PFA flow tube. A relevant rhetorical question might ask "if the Applicants' invention is obvious", why haven't others employed this "obviousness" that is so apparent to the Examiner.


It is believed that all claims remaining in the application are allowable for the reasons priorly discussed and such action is respectfully requested.

The Examiner is invited to call the undersigned if the prosecution of the application can be expedited by so doing.

Respectfully submitted,

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